<u>REMARKS</u>

Claims 1-30 are pending in the application of which claims 1, 15-16, and 30 are
independent. Claims 1, 15-16, and 30 are amended for clarity and to provide clearer antecedent
basis. No new matter is added. Reconsideration of the action mailed February 22, 2005, is
respectfully requested in light of the foregoing amendments and the following remarks.

The Examiner rejected claims 1-4, 11-19, and 26-30 under 35 U.S.C. § 102(b) as being
anticipated by U.S. Patent No. 6,643,413 to Shum et al. ("Shum"). The Examiner rejected
claims 5-10 and 20-25 under 35 U.S.C. § 103(a) as being unpatentable over Shum in view of
"Fundamentals of Texture Mapping and Image Warping" by Heckbert ("Heckbert").

Section 103(a) Rejections

Claim 1 stands rejected as unpatentable over Shum in view of Heckbert. Claim 1 recites
a method for shifting a perspective of a composite image. A composite image is derived from a
plurality of component images including a first image and a second image. The composite image
includes a first image and a modified second image. The first image is the center of projection
for the composite image and the modified second image has been corrected for perspective
distortion with respect to the first image. Additionally, claim 1 recites instructions received to
shift a perspective of the composite image to make the second image the center of projection of
the composite image instead of the first image (*i.e.*, the composite image is changed such that the
second image becomes the center of projection for the composite image).

Shum does not disclose or suggest a composite image derived from a plurality of
component images that include a first image as a center of projection and a modified second
image. The Examiner states that Shum discloses Applicant's composite image as element 302b
in FIG. 3 as derived from mosaic images 302a, 302b, and 303c. Applicant respectfully
disagrees.

FIG. 3 illustrates a representation of a set of concentric mosaics. *See* col. 6, lines 33-35.
Each concentric mosaic represents viewpoints of a virtual camera constrained to an angular

motion about a particular radius from the center point. *See* col. 6, lines 43-50. For example, Shum discloses in FIG. 2 that the image-based rendering allows a virtual camera to represent different desired viewpoints around a central object 202, from which an image of the central object 202 can be rendered. *See* col. 5, lines 52-61; FIG. 2.

Each individual mosaic in FIG. 3 represents a set of viewpoints of a center point having a different radial distance from the center point. The mosaic provides a multiperspective panorama at a particular radial distance from the center point. The mosaics can therefore be used to render an image of an object at the center point at different angular and radial distances. *See* col. 7, lines 17-19. Images of the center point (*e.g.,* center object 202 in FIG. 2) can be rendered continuously along a path of a particular mosaic; however, discrete jumps are required to hop from mosaic to mosaic. *See* col. 7, lines 4-15. Each concentric mosaic is independent of each other concentric mosaic such that only a single mosaic is used to render an image on the panorama at a particular viewpoint.

Therefore, the mosaic 302b in FIG. 3 is not a composite image formed by a combination of the mosaics 302a, 302b, and 302c. Mosaic 302b is an independent mosaic providing a panorama for a particular radial distance. The difference between independent mosaics 302a, 302b, and 302c is the radial distance. Consequently, Shum does not disclose or suggest a combination of mosaics to form a composite image.

Additionally, the Examiner cites col. 11, line 29 as disclosing a "new image" that the Examiner states is equivalent to the composite image 302b. Col. 11, lines 27-32, reads, in pertinent part, as follows:

> It is noted that such hopping as has been described is distinctive from point sampling, in at least that rendering a new image in accordance with embodiments of the invention is accomplished by synthesizing the image from a single manifold mosaic using local warping, as opposed to collecting the new image from several mosaics.

The complete sentence, including the cited line 29, does not disclose forming a composite image as a combination of individual mosaics. Instead, the section discloses that an individual image rendered from a particular viewpoint on a mosaic is derived from a single mosaic, not from a combination of mosaics. Thus, the section of Shum identified by the Examiner

specifically states that mosaics are not combined. The disclosed local warping is performed on an individual mosaic to render a specific image representing that viewpoint from that mosaic. Shum does not disclose or suggest any warping of one mosaic into another mosaic in order to form a composite image having more than one mosaic.

Additionally, even if mosaic 302b were a composite image, Shum fails to disclose a mosaic as including a first image as a center of projection and a second modified image. The mosaics disclosed by Shum do not have a center of projection. The mosaic represents a circular panorama without regard to any particular perspective. Additionally, the mosaic does not include a first image and a modified second image. Shum does not disclose or suggest mosaics having modified and unmodified images.

The Examiner also states that Shum discloses shifting a perspective to make the second image the center of projection of the composite image as the "movement of virtual camera" flowchart element 1104 of FIG. 11 applied to a composite image as element 302b in FIG. 3. The Examiner states that element 302b, in addition to being the composite image, is also the second image made the center of projection. Applicant respectfully disagrees.

The movement of the virtual camera disclosed as element 1104 in FIG. 11 is the movement of a virtual camera either continuously along a single mosaic or as a discrete hop to a second mosaic. *See* col. 13, lines 34-39. An image is rendered for a new position of the virtual camera by locally warping the view associated with the new position of the virtual camera. *See* col. 13, lines 42-46. A change in virtual camera position results in an image rendered from a different perspective; however this does not disclose or suggest shifting the perspective within the composite image from a first image to a second image. Instead, Shum renders a new image from the single mosaic for each new position of the virtual camera. *See* col. 13, lines 43-46; col. 11, lines 28-32. Shum's mosaics are not composite images having a first image and a second modified image, therefore Shum does not shift the perspective of the composite image from a first image to a second image.

Shum fails to disclose or suggest a composite image having a first image and a modified second image and further does not disclose or suggest shifting the center of projection within that

composite image from the first image to the second image. Applicant respectfully submits that claim 1, as well as claims 2-14, which depend from claim 1, are in condition for allowance.

Claim 15 stands rejected as anticipated by Shum. Claim 15 recites a computer-implemented image processing method that includes providing a composite image derived from a plurality of component images that include a first image as a center of projection and a modified second image. For at least the reasons set forth above with respect to claim 1, claim 15 is also in condition for allowance.
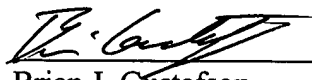
Claim 16 stands rejected as anticipated by Shum. Claim 16 recites a computer program product for shifting a perspective of a composite image derived from a plurality of component images that include a first image as a center of projection and a modified second image. For at least the reasons set forth above with respect to claim 1, claim 16 as well as claims 17-29, which depend from claim 16, are also in condition for allowance.

Claim 30 stands rejected as anticipated by Shum. Claim 30 recites a computer program product for processing an image that includes receiving a composite image derived from a plurality of component images that include a first image as a center of projection and a modified second image. For at least the reasons set forth above with respect to claim 1, claim 30 is also in condition for allowance.

Applicant respectfully requests that all pending claims be allowed. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

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